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ABSTRACT

Reviewed are studies investigating the commonly held supposition that precocity in gifted children frequently results in failure as adults. The author uses an IQ cutoff point of 132 as a measure of giftedness and compares the utility of three criteria of success: employment in a position utilizing his capacities (the criterion of L. Terman's study and the author's), eminence in one's professional position, and achievement of an international and enduring reputation for one's accomplishments. Reported is a study which followed up children identified as precocious in the popular press and showed one extreme failure and many successful or outstandingly successful adults. Testing of Terman's group as adults and a study of the females in his group are also reported to show that Ss continued to have outstanding intellectual ability and professional success. The author suggests that the use of unrealistic criteria (such as expecting accomplishments of an Einstein or Newton) is responsible for the continuing myth that precocious children grow up to be failures as adults. (DB)

Precocity and Adult Failure: Shattering the Myth

Cecilia H. Solano

One of the most popular allegations concerning gifted children is that they "burn out" when they get older. Another, slightly more elegant, way of expressing this idea is the phrase "early ripe, early rot." Both carry the idea that gifted children as a rule fail to measure up to their childhood promise. Like most such claims, the particulars are not made clear. Do virtually all gifted children fail, most of them, or only some? Few people will support, I think, the contention that all gifted children fail in adult life. Similarly, one would have to be extremely optimistic to assume that all gifted children succeed in life. The question, therefore, becomes, what is the probability of life failure?

Determining the percentage of gifted children who fail is not the only problem. One must also ask, fail at what? Many writers in the past, including Lombroso and Lehman, have dealt with the idea of the gifted child as a personal failure, beset with problems, unstable, and all too often meeting a tragic end. Lewis Terman demonstrated in his research that talented youths are not the miserable specimens portrayed by these authors. In a follow-up study on Terman's group, Oden described the gifted group at an average age of fifty. She concluded that these adults were not unstable, and actually had relatively few personal problems in relation to the population in general. The question asked here, then, is whether or not the gifted child succeeds in utilizing his intellectual promise in his adult career.

The next question is what level of achievement constitutes success.

Terman suggested that the best criterion was that the special abilities of the gifted child were being used effectively in his adult occupation. To be working at a job far below one's capacities is to be a failure in these terms. Since gifted children are usually identified for their intellectual rather than their artistic or athletic ability, the careers that would be appropriate for them can be assumed to be in the professional or business management lines. Beyond this basic definition of success, two other degrees can be identified. The second is that one is eminent in one's professional position, not just fulfilling the job requirements well. The third level of success would be to have achieved an international and enduring reputation for one's accomplishments. For the moment, the first level of success will be considered a sufficient goal for the gifted child.

At this point it might be useful to define my use of the term "gifted child." The lack of agreement on this point is widespread in the literature on precocious youth. Cutoffs for being considered gifted from a minimum I.Q. of 120 in some school districts to the 132 used by the California state school system to the 140 used by Terman in his research. For the purposes of this paper, generally intellectually gifted children will be those youths who have achieved an I.Q. of at least 132, either through testing procedures or through performance of extraordinary feats at an early age. This means that such a child is two or more standard deviations above his average age-mate in intellectual ability.

Three types of evidence can be used in investigating the statement that gifted children fail as adults. The first type of evidence is that most commonly used by lay persons, and usually start off with, "Well, I once knew someone who . . . ." This kind of evidence, either supporting or not supporting the failure hypothesis, can be quickly dismissed. For one, the number of subjects is small and probably not representative.

Also, there can be little certainty that the child discussed in the anecdote was actually as gifted as we are discussing in this paper. Furthermore anecdotes are usually for the purposes of illustrating a point and therefore conclude when the point is reached. Further information about the person's life history might reveal an outcome of a far different nature.

The unacceptability of casual anecdotes has been discussed at some length, since they are the most common form of evidence in general conversation. They are not to be confused, however, with case studies. Case-study methodology is useful in areas where controlled experimentation is impossible or well-planned follow-ups are costly and difficult. In a case study, the child is verified through some means as having been precocious. His entire life is then studied and an evaluation made of the degree to which the adult used the relevant childhood abilities. Until recently, the case study method was the only one available to persons interested in the fate of gifted children. One problem with the method as it was used in the past is that only the most spectacular successes or failures tend to have their lives recorded in great detail. A child as precocious as Mozart who maintains his musical proficiency as an adult will have many documents preserved recording his life's accomplishments. A person such as William James Sidis, who was a truly remarkable failure, will also be remembered. Few precocious children who grow up and become average professionals will have their lives recorded for posterity.

This method can, however, be made more rigorous when one is dealing with modern case histories as has been shown by Kathleen Montour. First a thorough check is made on all the precocious children in recent history who have been written up in magazines or newspapers. The Reader's Guide to Periodical Literature will list many stories such as the one Life

magazine ran in 1945 on Merrill Kenneth Wolf, who in graduating at 14 from Yale, became the youngest B.A. recipient in American history. Next, a check is run to determine the adult status of all these children. Many are still alive and willing to cooperate in creating up-to-date case histories. In this way, Ms. Montour has been able to obtain a more representative sample. She does not have to be concerned with her subjects being so eminent that their life stories are still extant after several centuries.

Using the case method described, Ms. Montour has located one extreme failure and quite a number of precocious children who did not fail as adults. The only virtually complete failure was William James Sidis, who was born around the turn of the 20th century. His parents were firm believers that precocity is a matter of education rather than inherent ability. Sidis was therefore pushed in his education and was able to enter Harvard as a full-time student at 11 years of age. The same year he displayed the extent of his precocity by delivering to an assembly of Harvard professors a lecture of graduate-student quality on the subject of 4th dimensional bodies. He received his baccalaureate at 15, but thereafter his life became more bleak. Resentful of his parents and hounded by the press, Sidis rejected intellectual pursuits and eventually ended as an impoverished and unemployed computational clerk. This case is often cited as an example of an incredibly able youth whose adult talents were limited to working nothing more complex than an adding machine. The standard version of the story does not mention, however, that as an adult Sidis published a book on the philosophy of science. This case is famous in particular due to the notoriety resulting from Sidis suing the New Yorker magazine for publishing his life story. The question that

remains from this distressing case is, how typical is Sidis' failure. Can one produce other cases with equally dismal outcomes?

Kathleen Montour has found a number of other cases as a result of her search. They all countermand the impression received from the Sidis case. One of the most interesting as regards the Sidis story is that of Norbert Wiener, who attended Harvard as a very young graduate student at the same time. Like Sidis, Wiener began college in his early adolescence, had a demanding father, and was exposed to the press. He also, however, obtained his Ph.D. at 18, was a long-time professor at M.I.T., and founded the field of cybernetics.

Other cases support this favorable image of precocious children with successful careers. The Merrill Kenneth Wolf mentioned previously is now a well-published professor of neuroanatomy at the University of Massachusetts. Charles Louis Fefferman received his Ph.D. in mathematics from Princeton at barely 20. At 22, he became the youngest person ever appointed a full professor at the University of Chicago. At 27, he recently received one of the most lucrative prizes offered for scientific achievement--$150,000! Paul Dudley, who received his Harvard B.A. at 14, later became the Chief Justice of Massachusetts. John Trumbell, a famous painter, spent a year and a half at Yale before graduating at 17. Robert Woodward, a Nobel prize-winning chemist, received his Ph.D. from M.I.T. at 20 years of age. Two of the famous "Quiz Kids" are now respectively a full professor at the University of Connecticut and a research associate at a large mining company. A woman with an I.Q. of 185 who read Plutarch for fun at the age of four became a noted journalist. A child composer discovered by Terman is now, as an adult, listed in Who's Who in American Women for her musical achievements. Her 157-I.Q. brother is chairman of the department of economics at a famous university. These cases provide sub-

stantial support to the contention that precocity is a forerunner of adult career success, not of adult failure.

It must be admitted, though, that case studies do have their problems. The precocious children of yesteryear must be willing in later life to cooperate with the investigator. One can reasonably assume that those who are less successful will be less eager to cooperate. Those who feel that they have lived up to their childhood promise will be most willing to reveal their life histories. This means that a bias is created in the data, due to losing track of the less successful men and women. This problem can be partially solved by using records that are open to the public. Another difficulty harder to overcome is that women, once they are married, usually become hard to trace. Another type of evidence that can be offered that does not suffer from the problem of retrospective studies is data from longitudinal research.

The classic longitudinal study was begun by Lewis Terman at Stanford University in 1921. He identified 1528 children (857 boys and 671 girls) from the California public school system who had I.Q.'s of 140 or more. A number of systematic follow-ups have been done on this gifted group over the years.

One question that can be answered from longitudinal data that could not be from case data is whether or not the intellectual ability of precocious children dissipates in adult life. Oden deals with this point both in her monograph and in her article with Bayley. The gifted children in Terman's study had been identified using the Stanford Binet test, but this test was inadequate for use with able adults. Therefore, the Concept Mastery Test was developed to assess the intellectual ability of the gifted adult group. Two forms of this difficult test of verbal reasoning were

were administered twice in the adult years to almost 800 of the original subjects. One form was given when they were on the average 30 years of age; the other was given 10 years later. The results were that in adulthood the Terman group scored far above the mean, as they had done in childhood. In fact, 146 of the group who did not go beyond college still scored as well as graduate students at a major university. It would appear that regardless of their career success, gifted children do not burn out intellectually as adults.

Oden also presents data relevant to determining the probability of career success. Of the 857 males in the Terman group, career data was available for 759. Eighty-six percent of these men were in professional or managerial positions. The list of distinctions that these men have earned is quite impressive. Among them, they have written 200 books, 2500 professional articles, 800 more articles of either a literary or general nature, and have been awarded 350 patents. Eight-one appear in the American Men of Science, 46 in Who's Who in America, and 10 are listed in the Dictionary of American Scholars. Less than 3% were employed in semi-skilled or unskilled labor. The majority, therefore, of the gifted boys did not "rot" in their occupations. They lived into their 50's, working at jobs that utilized their intellectual ability.

Longitudinal data on women is presented both in the Oden monograph and in a recent article by Paule Sears. Oden reports that half of the women were only housewives and the other half worked either full or part-time. Sears contrasted the Terman females with a group of average-ability women in the same age bracket who had been studied by the Institute for Social Research at the University of Michigan. She found that the Terman gifted women were significantly better educated than the average-ability group. Sixty-seven percent had graduated from college as opposed to 8%.

The gifted women were also employed at a significantly higher rate and were significantly more apt to hold professional or managerial positions (63%). Compared to women in general, then, the Terman group have a much more impressive record of educational and occupational achievement.

Both the longitudinal and the case study data suggest that the allegation of early rot being associated with precocity is not true. Yet the notion that these talented children will fail does persist. I would, therefore, like to examine the idea of failure a bit more closely. In the beginning of this paper I drew distinctions among three kinds of occupational success. The criterion used thus far in the paper was the least stringent. To succeed a person had to hold a job that utilized his intellectual abilities.

The other two standards of success that were mentioned were being eminent in one's profession and being eminent at a level that brings international and historical acclaim. I would like to suggest that it is the latter two criteria that the adult performances of gifted children is measured against, and against which their performance is found lacking. I would also like to suggest that these are not reasonable criteria of success.

To have an I.Q. of 132 places one in the top two percent of the population in intelligence. According to an article by Wolfle, the professional and managerial jobs constitute about 2% of the occupations held by the total population. It would appear that to be in the upper two percent of the population in intelligence and to aspire to a professional career is a reasonable goal for a gifted child. Wolfle offers further evidence that a person with an I.Q. of 132 is not unusual in professional positions. In his article he states that the median I.Q. of Ph.D. recipients between 1941 and 1950 was 134 as measured with the Army General Classification Test. The Concept Mastery Test handbook gives the mean score of

research scientists as 118, of creative writers as 156, and of the Terman group as 137. From these figures it can be seen that high intellectual ability is not exceptional in professional classes, but fairly common.

These data indicate that a precocious child who grows up to be a professional will face competiton from intellectual equals. Thus, the competition he faces within his occupational group will be much more difficult than that which he faced in his childhood school-days. Only a very small number of professionals ever attain eminence in their field against such competition. To use this criterion of success seems unreasonably stringent.

The use of this criterion may arise from a faulty perception of what constitutes the appropriate reference group. As a child, the precocious youth was identified as being outstanding in reference to his age-mates in general. Even if he becomes a professional when as an adult, the appropriate reference group will still be his age-mates in general. The tendency, however, is to compare him with his current peer group, which is other professionals. One does not want him to be better than the population in general; one wants him to be more successful than his profession in general. To this day of thinking, it is the rank position that is important, not the relevancy of the reference group.

If a professional does achieve eminence, it must be due to factors other than simple intellectual ability. That this is indeed the case has been shown by both Oden and by Roe. Oden took the 100 most successful Terman men and compared them to the 100 least successful. The most successful were eminent in their respective fields. The least successful were in professional positions but did not have the stature or impressive of the others. Oden found that the major differences between the two groups were that the very successful men came from supportive families

and that they personally had a very high level of motivation. The less successful were more apt to come from homes with lower education and income and ones which did not instill a drive for professional eminence. The characteristics of 64 eminent scientists in various disciplines were studied by Roe. She also discovered that these outstanding men were characterized by their "driving absorption in their work." She has noted too that over half of these men came from professional families. These two factors, supportive families and personal motivation, appear to be as important as inherent ability in becoming an eminent professional.

Eminence, therefore, cannot be predicted solely on the basis of intellectual precocity. General intelligence scores are not designed to detect extra-ordinary motivational levels nor specific extremely high abilities.

There is another facet of the "early ripe, early rot" phenomenon that suggests the allegation is related to inflated expectations and not actual performance. This is the difference in attitudes toward gifted men and women. For a gifted man to succeed, he must rank at the top of his profession as he ranked at the top of his male peers. Gifted women, though, are usually considered to have succeeded if they just attain professional status. This produces a rank ordering in their cases similar to the position they held relative to other girls in their childhood. One hears little about gifted girls "burning out" if they become average professionals. From this, it can be seen that the evaluation of success is keyed to the top of the immediate reference group, no matter what the actual eminence of this group.

The final criterion of success to be considered is that of eminence at the international level which endures throughout history. People who are capable of achieving at this level are often called "geniuses." It

is an historical fact that the study of the gifted child is an outgrowth of the study of the great men of history. Galton's early work was concerned with prominent English men of science. Terman certainly had this criterion of achievement in mind when he entitled his five volumes Genetic Studies of Genius. It was Catharine Cox, however, who tied the two areas of research together.

Cox was interested in determining the intelligence quotient for a sizeable number of great men. To do this, given the then current definition of intelligence, she had to show that they had been precocious as children. She took 300 famous writers, explorers, artists, philosophers, politicians, generals, scientists, and inventors. Using historical records, she was able to demonstrate that virtually all great men had been precocious children. Unfortunately, many people have taken this to be a reversible statement. That is, it is often assumed inappropriately that all precocious children will be great men.

Those of us who work with SMPY can vouch for the fact that this attitude does indeed exist. We have been in operation in the state of Maryland for only five years and a number of persons have complained that we have discovered no one of Galois' or Newton's historical stature. This attitude is obviously not concerned with the antecedent probability of genius level achievement, but with miracles.

We have said that children with I.Q.'s in the top two percent are defined as precocious. With a current U.S. population of 250 million people that makes for some five million persons with this level I.Q. Considered over the centuries, this number becomes even larger. Even tripling Cox's number of geniuses throughout history to almost 1,000, the probability of any one precocious child growing up to be Einstein is

extremely small. It should also be realized that eminence of this stature is an historical phenomenon that depends on having an ability that is valued highly by one's society. Also, the opinion of society is not always consistent. The evalnation of Shakespeare has changed several ti in the four hundred years that his works have survived.

In conclusion, the empirical evidence has not supported the contention that precocious children burn out as adults. If one uses the criterion of using their abilities at an appropriate level, most precocious children will grow up and fulfill their potential. Using the criterion of eminence in one's professional group has been shown to be a case of using the wrong reference group. Also, the antecedant probabilities of being a genius has been demonstrated as so be/small as to be irrelevant for evaluation of precocious children.

A final point is that using inappropriate criteria may have serious consequences to the life of a particular precocious child. The self concept of a gifted child is tied to what he and his parents view as a reasonable level of success. If this level is set at too high a level, the precocious child is bound to experience a sense of failure in his adult life. One might ask the question, though, if these last two criteria have any importance other than as curiosities. Unfortunately, illusions such as are created by the use of these two criteria that gifted children fail as adults have a very real effect on talented youths.

Parents fear having precocious children and strive to protect them from their certain failure. They and educators strive to suppress signs of this unwholesome acceleration. Even worse, they may pass on this fear to the child himself. He and they feel that if he does not become another Charles Fefferman he has failed his potential. Given this attitude, parents and gifted children will be uneasy in putting themselves

into stiffer competition where the child's ability is unchanged but his apparent rank position drops. This can be devastating to a child's ego if left too long. Keeping a child in his lockstep allows him to perceive himself as at the pinnacle of achievement. When the competition changes as he goes through college, he will begin to perceive his actual rank ordering in regards to his able peers. Only the very few will be allowed to continue with the correct perception that they are at the top of their professional pecking order. By being allowed to remain in the wrong set of competitors, the child and his parents develop an erroneous set of expectations and use the wrong criteria to judge his later performance. This sort of behavior leads people to think that a 14-year-old who is placed in college should be at the head of his class. They do not realize that he is at the head of his age-mates class, but it would be absurd to think that any but the very few will ever be at the head of the whole human species.